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Reg: Direct GRB-candidate notification from GBM to LAT

It was discussed that a hardwired trigger signal from the GBM to the LAT could be provided. This signal would alert the LAT of a possible gamma-ray burst with a latency of approximately 1 ms. This signal would enable the LAT trigger and filter system to be switched for the bulk of the events that are acquired. The frequency of the candidate alert should be less than 100/day (tbr).
This direct signal is in addition to a confirmation message transported via the 1553 spacecraft command bus which has a latency of approximately 1 sec. As far as we understand not all candidates are followed by a 1553 message in the present proposal, just the accepted ones. In that case the LAT would fall back to the normal processing modes if the confirmation message is not received within 2 sec (tbr))

There are many ways to provide the direct signal, here is just one possible solution to give an idea of the principle.
As illustrated in Figure 1, the GBM generates a GRB-candidate digital signal, e.g. TTL, transformer couples it for isolation, and transmit it via a shielded wire-pair (signal and signal return, shield not shown) to the LAT. The trigger signal could be one pulse with a length of 50 – 100 usec.
A redundant signal may be required.